


**Joint Depot Maintenance\*Volume 02-01**

# **CIRCULAR**

*Published for and about the Joint Depot Maintenance Community*

A woman with brown hair, wearing a white t-shirt and olive green pants, is working on the wiring of an aircraft. She is holding a bundle of white wires and using a tool to connect them. The aircraft's fuselage is visible, showing rivets and a large section of the skin that has been removed, revealing the internal structure. The background is slightly blurred, showing other parts of the aircraft and the workshop environment.

**READY ON THE HOMEFRONT.**  
Electrician Shauna Sullins installs a wire harness in an A-10 Thunderbolt II. She works in "Hog Heaven," the A-10 production section of the Aircraft Directorate at the Ogden Air Logistics Center, Hill Air Force Base, Utah. Ms. Sullins is part of a civilian team that extends the life of the aging aircraft. (U.S. Air Force photo by TSgt. Lance Cheung)



# Tobyhanna Army Depot supports advanced artillery data system

**T**echnicians at Tobyhanna Army Depot, Pa., are assisting the U.S. Army's fielding of the Advanced Field Artillery Tactical Data System (AFATDS). Electricians, sheet metal mechanics, and personnel from other divisions recently completed a \$4-million project to make 64 soft-top platform kits for integration into high mobility multi-purpose wheeled vehicles (Humvees).

They installed standard integrated command post systems for the program manager platforms at Fort Monmouth [N.J.], according to Brian Cannon, chief of the Sheet Metal Component Assembly Division, in the Systems Integration Directorate. "A majority of the mechanical parts and all the electrical parts are fabricated here," he said.

The depot had previously completed 214, and several more are scheduled for this year.

AFATDS uses common hardware

and software (CHS) computer suites. The integrated system provides automated support for planning, coordinating, and controlling all fire-support systems (field artillery, mortars, close air support, naval gunfire, attack helicopter, and offensive electronic warfare). The system also supports counter-fire, interdiction, and suppression of enemy targets for close and deep operations.

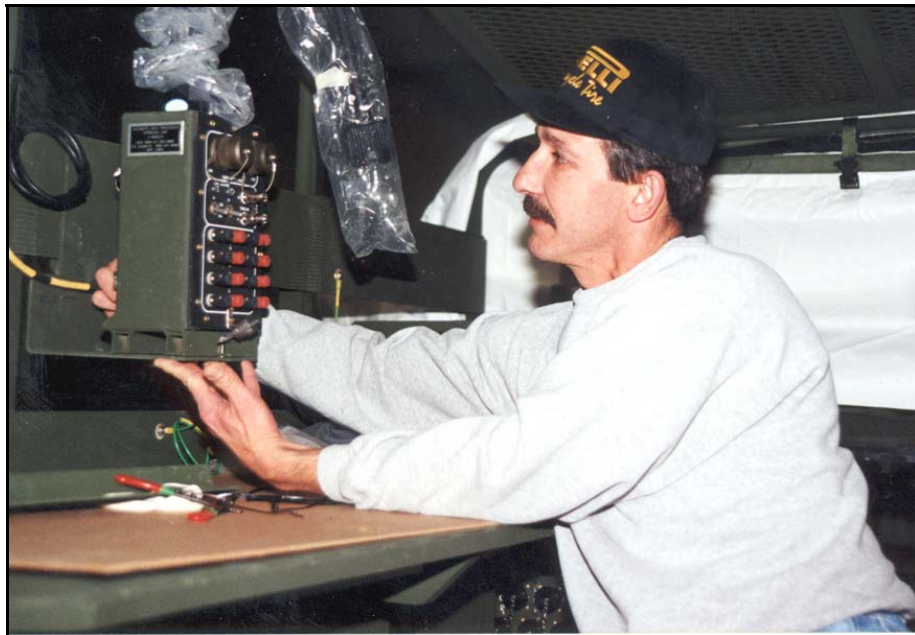
Each soft-top kit is composed of standard racks, brackets, a power control

module, and a fiber-optic local area network (LAN) module. Soft-top refers to the canvas covering for the back of the Humvees.

The kits are built to accept CHS systems. Once a kit is integrated into a Humvee, the CHS can be installed.

Sheet metal personnel fabricate and install the racks, shelves, and keyboard trays in the depot's Tactical End Item Repair Facility. Each installation takes about three days.

"It takes us about 24 hours to complete [the me-



***Richard Ondrako, an electrical worker in the Systems Integration Directorate at Tobyhanna Army Depot, Pa., inspects a fiber-optic local area network module. The module will be integrated with common hardware and software components that support the Advanced Field Artillery Tactical Data System. (U.S. Army photo)***

chanical portion of] each Humvee,” said sheet metal worker Leo McHale. Once we’re done, everything is repainted with touchup work, personnel from the Component Painting and Woodworking/Fabric divisions install the blackout curtains, “which are fabricated at Tobyhanna as well.”

When sheet metal personnel are finished, the electricians begin their work.

“Tobyhanna fabricates all the components, including the

power control module and the fiber optics LAN and cables. We also assemble and install the kits,” said Richard Ondrako, an electrical worker in the depot’s Systems Integration Directorate. “After installation is done, everything is inspected and tested.”

Finished Humvees are shipped to various units throughout the United States. Teams of depot employees working with AFATDS program managers then integrate the computer sys-

tems.

Tobyhanna has completed and shipped several to Army Units. Cannon says the program is ongoing, and the depot will produce several more until the effort is complete.

For information contact Anthony Ricchiazzi, Public Affairs Office, (570) 895-7557/DSN 795-7557, [anthony.ricchiazzi@tobyhanna.army.mil](mailto:anthony.ricchiazzi@tobyhanna.army.mil).

## ***NCMS releases new report on lead-free solder alloys***

**E**lectronic assemblies are used not only in offices, but also in harsh environments, such as automotive, avionic, oil drilling, and military applications, that require temperatures that range from -55°C to 160°C. To meet this temperature requirement and to join in the worldwide push to eliminate lead from electronic assemblies, the National Center for Manufacturing Sciences

(NCMS) conducted a four-year collaborative, multi-partner effort – the Lead-free, High-temperature, Fatigue-resistant Solder Project.

Project team members considered 241 solder alloys and found 7 lead-free alloys that exhibited performance superior to both tin-lead and tin-silver eutectic solders at -55°C to 160°C.

Study results are available in a final project report deliv-

ered on a compact disk. The 110-page report contains more than 50 graphics, tables, and photos, several in color. Cost per CD-ROM is \$200 for NCMS members and \$295 for nonmembers.

To order copies, contact Cindi Bousley, (734) 995-3075 or [cindib@ncms.org](mailto:cindib@ncms.org), or visit the NCMS Web page at [www.ncms.org](http://www.ncms.org) and click on the “Reports” link.

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# Services enhance efficiency, effectiveness with MRP-II/ERP

*Contributed by Les Campbell, chief, Depot Maintenance Analysis Division, JDMAG*

**T**he depot maintenance community is employing many new and versatile management tools to enhance the efficiency and effectiveness of organic maintenance depots. Two such tools are Manufacturing and Resources Planning-II (MRP-II) and Enterprise Resource Planning (ERP). These closely related concepts enable the integrated employment of the various

functions within a maintenance depot to ensure optimal accomplishment of the depot's mission. Each of the military Services is implementing some aspects of MRP-II/ERP within its depots.

This article describes these concepts and recaps the status of their implementation within each of the Services.

MRP-II is a method for effectively planning all resources of a manufacturing company.

It evolved from Materiel Requirements Planning, which started as a method for determining and planning material requirements in the 1960s.

The dictionary of the American Production and Inventory Control Society defines MRP as a set of techniques that uses material data, inventory data, and the master production schedule to calculate requirements for materials. It makes recommendations to release replenishment orders for material.

Evolving in the 1970s, MRP-II took things a step further – beyond the factory to the other complementary functions necessary for running the industrial firm. In addition to the traditional manufacturing subsystems, such as production planning and scheduling, shop floor control, capacity planning, time and attendance, etc., MRP-II extends the subsystem integration into job costing, financial management, forecasting, order processing, performance measurement, and the like.

New technology has made interfacing between the various functional areas of complex business increasingly easier. MRP-II is evolving

## NADEP JAX updates MRO software package

**N**aval Air Depot, Jacksonville, Fla. (NADEP JAX), has recently begun using a modern, off-the-shelf maintenance, repair, and overhaul (MRO) software system. This change represents a transition from aging, custom-developed legacy software, with the goal of improving aviation depot responsiveness, while reducing operating costs.

NADEP JAX was designated in 1996 as the initial operating site for the Department of Defense (DOD) Manufacturing Resource Planning

(MRP-II) program. MRP-II implementation is a vital step in helping the government achieve maximum military readiness at an affordable cost. The software used for this implementation was provided by Western Data Systems (WDS), and this is the first time a government depot has completed implementation of a commercial-off-the-shelf software package throughout a major MRO facility.

This extensive systems implementation project was coordinated by the DOD MRP-II

*(Continued on page 14)*

beyond production industries as a total enterprise solution. These expanded “super” MRP-II systems, called ERP, have many advantages, including

- ♦ reducing inventory, purchasing and traffic costs, obsolescence, and over-time;
- ♦ improving customer service, labor productivity, and quality of life;
- ♦ providing real-time performance measurement; and
- ♦ developing organizational accountability.

(<http://faculty.bus.olemiss.edu/breithel>)

### DEPT. OF DEFENSE

In 1995, a commercial-off-the-shelf (COTS) MRP-II software package was approved as the overhaul and repair management migration system for the Navy and Marine Corps, with options for the Army and Air Force. The now-defunct Joint Logistics System Center (JLSC), after conducting a full and open competition, awarded the MRP-II COTS contract to Western Data System (WDS) for the *Compass CONTRACT<sup>R</sup>* software suite in 1996.

In 1997, program management responsibilities for the DOD MRP-II program transferred from the JLSC to the Naval Air Systems Command (NAVAIR).

### NAVAIR

Currently, *Compass CONTRACT<sup>R</sup>* is in different stages of implementation at three naval air depots (NADEP) with full implementation across all product lines at NADEP Jacksonville (JAX), Fla., since October 1. NADEP Cherry Point, N.C., has implemented MRP-II in all aircraft lines, and NADEP North Island, Calif., has implemented it in more than 80 percent of its shops.

Based on the depot repair environment requirements generated during implementation at the NADEP, WDS worked with NADEP JAX (see related article on p. 4) and the DOD MRP-II Program Management Office to enhance the *Compass CONTRACT<sup>R</sup>* software suite with Maintenance Repair Overhaul (MRO), an enhanced software package that is fully adapted to the depot repair environment.

For information contact Bob Erwin ([ErwinRL@navair.navy.mil](mailto:ErwinRL@navair.navy.mil)), DSN 757-3045.

### MARINE CORPS

Marine Corps Logistics Bases Albany, Ga., and Barstow, Calif., are simultaneously implementing a formal MRP-II system across all product lines. *Compass CON-*

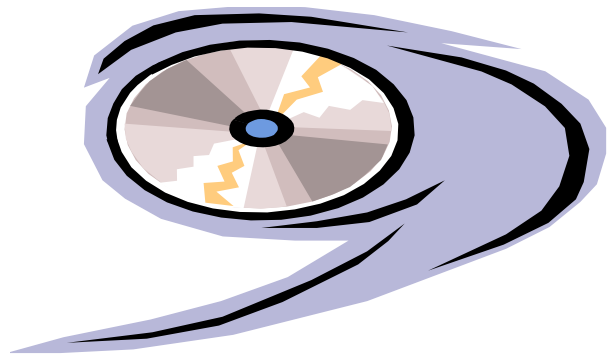
*TRACT<sup>R</sup>*, along with other DOD financial and material systems, will support this management system, which will link many processes including business strategy, requisitioning, and control.

For information contact Annette Florence ([FlorenceAR@matcom.usmc.mil](mailto:FlorenceAR@matcom.usmc.mil)), DSN 567-5575.

### AIR FORCE

Headquarters Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio, and the air logistics centers adopted MRP-II/MRO following the successful implementation of the Depot Maintenance Accounting and Production System in fiscal year 2000.

The Aerospace Maintenance and Regeneration Center, Davis Monthan Air Force Base, Ariz., has successfully implemented *Compass CONTRACT<sup>R</sup>*/MRO. Additionally, Ogden Air Logistics Center, Hill Air Force Base, Utah, has implemented the IMPRESSA product (MRP-II/MRO) in its landing gear facility.



(Continued on page 15)

# Army depot produces 1st missile component

Personnel at Tobyhanna Army Depot, Pa., have been repairing and testing Air Force AIM-9 Sidewinder missile guidance and control (GCS) systems in a renovated \$6.7-million facility provided by the U.S. Army Corps of Engineers. As a result of the 1995 Base Closure and Realignment

Commission, Sidewinder workload is transferring to Tobyhanna from Letterkenny Army Depot, Pa.

The Sidewinder is a supersonic, heat-seeking, air-to-air missile carried by Air Force and Navy fighter aircraft.

The GCS contains an infrared gyroscopic component that enables the missile to home in

on the engine exhaust of target aircraft. An infrared unit costs less than other types of guidance systems and can be used day or night in all weather conditions. The infrared seeker also permits a pilot to launch the missile then leave the area or take evasive action while the missile guides itself to the target.

The first GCS was completed at Tobyhanna approximately a year ago, although the depot didn't have the equipment normally used for the multi-step testing and repair process.

"We used a system test and troubleshooting station (STTS) for this first production to show we can carry out the overhaul, repair, and test mission," explained Mike Fisher, chief of the Sidewinder Missile Division. "Letterkenny [Army Depot, Pa.] is still producing Sidewinder GCSs, so the rate tables they use will be transferred here later. The STTS is adequate, but the rate tables are much faster."

A rate table runs a final test of a missile's GCS after  
(Continued on page 9)

## AF depot completes Sidewinder upgrade

The missiles division at Robins Air Force Base, Ga., recently finished building a new version of the Air Force's air-to-air Sidewinder missile. Called the AIM-9M-9, it can't be fooled by flares dropped by enemy aircraft.

The Sidewinder is a heat-seeking, short-range, air-to-air missile used by most U.S. fighter aircraft and the A-10 ground support aircraft. Its guidance system homes in on a target aircraft's engine exhaust, enabling the pilot to launch and leave while the missile guides itself to the tar-

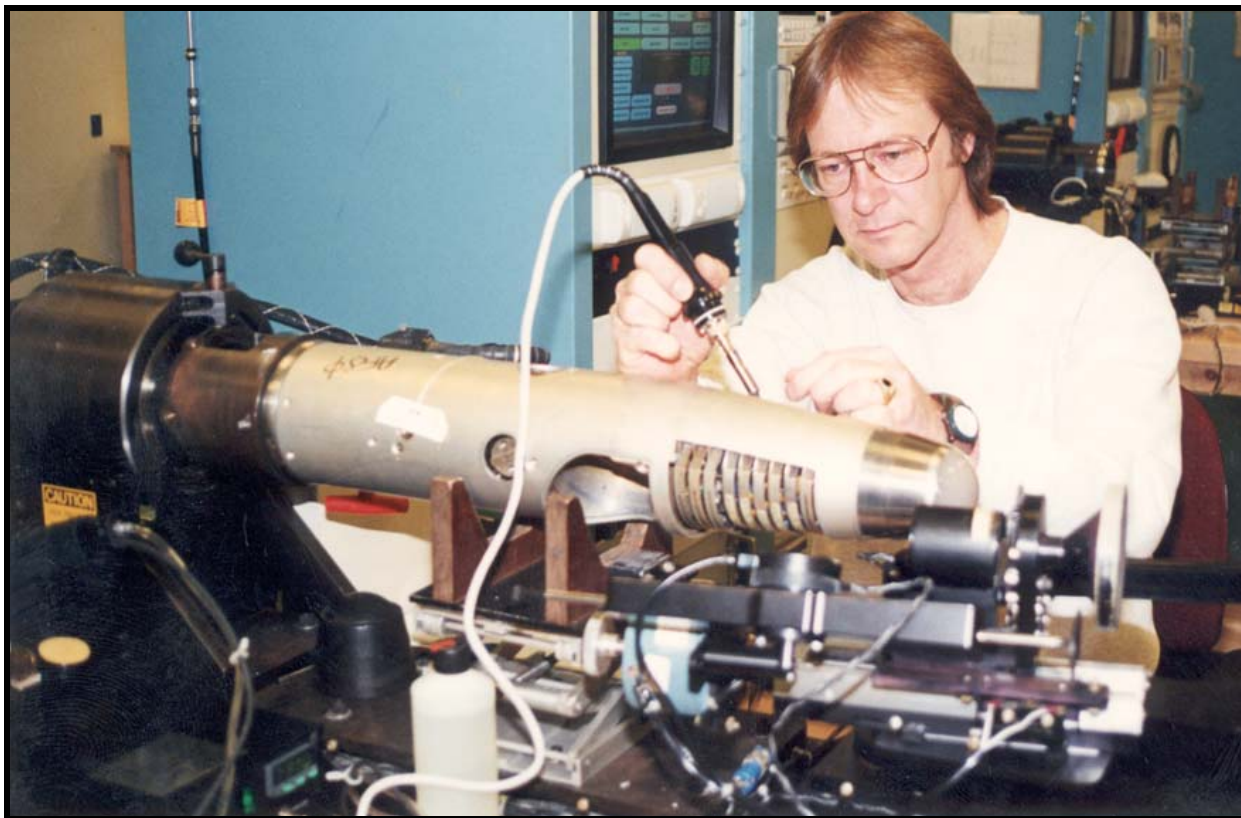
get.

"The modification improves counter-counter measures capability," said Paul Wellborn, deputy chief of the Missiles Division. "Enemy aircraft throw out flares to confuse the missile, and we corrected that problem. It gives the war fighter's missiles a higher probability of a kill."

According to logistics analyst Paul Bennett, a contractor from Value Systems Engineering (VSE) working with the missiles division, the program delivered 6,600 modified mis-

(Continued on page 7)





***Electronics mechanic Richard Sosnak of Tobyhanna Army Depot, Pa., tests a guidance and control system (GCS) of a Sidewinder missile. Tobyhanna will overhaul, repair, and test several hundred GCSs per year. The Sidewinder is a supersonic, heat-seeking, air-to-air missile carried by Air Force and Navy fighter aircraft. (U.S. Army photo)***

*(Continued from page 6)*

siles to Air Force field units. Raytheon Missile Systems provided the components while the modification took place at Letterkenny.

"All test sets had to be modified, too, to check out the new capability," said logistics manager John Collins, a VSE contractor. "They had to be modified before the missiles could be sent to the field."

Bennett said upgrading and delivering the missiles to the field involved "a lot of coordination" between Robins, the manufacturer, the armed ser-

vices and LEMC. He said 179 deliveries were made to 84 locations in the United States and around the world, bringing the older missiles back for modifications as new missiles went out without reducing inventory for the war fighter.

"If any part had broken down in the round-robin flow, it would have set everything behind schedule," Bennett said. "We couldn't wait for a warehouse full of shipments. They need missiles on day one of a war."

"The key word is confidence," he said. "We had to have confidence that Letterk-

enny could deliver on time; the field units had to have confidence they would be delivered."

The missiles division manages air-to-air missiles and radar-detecting air-to-ground missiles, which, in addition to the Sidewinder, include the AIM-7 Sparrow, AIM-120 AMRAAM, the radar-detecting AEM-88 HARM and the Stinger shoulder-fired missile.

For information contact Sidewinder program manager Kim Sadowski, (478) 926-9696/DSN 468-9696, [kim-berly.sadowski@robins.af.mil](mailto:kim-berly.sadowski@robins.af.mil).



**T**esting the capabilities of the B-1 bomber has become quicker and easier thanks to a partnership between avionics technicians at Oklahoma City Air Logistics Center, Tinker Air Force Base, Okla., and University of Oklahoma professors.

The professors reengineered the B-1B pitot static interface system to provide a more effective, efficient, and reliable method of interfacing the aircraft to the simulation test set. Designed by the university's Aerospace and Mechanical Engineering team and Tinker employees, the system discerns the aircraft's speed,

altitude, and angle of attack.

The old system was messy, prone to leaks and wear and tear, and capable of damaging expensive transducers.

The new interface system was developed to standardize the method of interfacing the system to the aircraft throughout the Air Force, as well as to overcome drawbacks of systems currently in use at Tinker and at McConnell Air Force Base, Kan.

The primary objective was to simplify fabrication, increase reliability, and simplify function testing and operation of the system.

The new interface has been successfully tested in the field

with positive feedback from the avionics technicians. Because it is virtually free of leaks and simple to use, repair, and maintain, the system is expected to significantly reduce the time needed to conduct the calibration process.

Bill Tilley, Office of Research and Technology Applications, said maintaining the B-1 bomber is an important function of Tinker's mission.

"About 20 to 30 of the aircraft are overhauled every year," he said. "One aspect of the maintenance work is calibration of the pitot static probes mounted on the aircraft with associated pressure-

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the components have been repaired and tested on their specific test equipment.

It takes about 18 hours to run the tests on an STTS; a rate table requires about 53 minutes. Fisher said the STTS originally intended for troubleshooting, will be used for that purpose when the depot has full capability.

"We trained for the mission at Letterkenny using rate tables," said electronics integrated systems mechanic Richard Novak. "During the certification process, we learned the additional testing procedures for the STTS along the way."

Each GCS is disassembled and the components tested at one station," said Fisher. Then they are sent to another station for further testing."

The GCS components are processed through up to seven workstations, plus a clean room, depending on repair needs. Every part of the GCS, including the fins that direct the missile's flight, is tested, repaired if necessary, and tested again.

Technicians give the GCS a leak and flow test to make sure seals are not broken. Mechanics rebuild and lubricate the pistons on the maneuvering fins, then install new seals. Afterwards, they remove the gyro and send it to a clean room for testing and repair.

"We overhaul and repair the GCS seeker in the clean room," said John Peters, an in-

strument mechanic leader.

"We've actually completed 15 of them..."

The clean room filters the air to remove dust and other contaminants down to .5 micron in size. A human hair is about 100 microns in diameter.

The air is filtered so that only 1,000 particles per cubic foot of air space are present.

The bench stations are filtered even further, to 100 particles per cubic foot, eliminating any particles that could affect the seeker's performance.

"A speck of dust on the seeker's prism mirror will degrade its capability; a fiber from a cotton swab will make it fail a test," Peters noted.

Once capability is fully established, Tobyhanna will overhaul, repair, and test several hundred Air Force Sidewinder GCSs per year.

The Navy and the Air Force plan to deploy the missile aboard amphibious assault and transport dock ships and on F/A-18, F-16, F-15, and F-22 aircraft. The Services plan to procure several thousand tactical and captive training missiles.

For information contact Anthony J. Ricchiazzi, Public Affairs Office, DSN 795-7557/(570) 895-7557, [anthony.ricchiazzi@tobyhanna.army.mil](mailto:anthony.ricchiazzi@tobyhanna.army.mil).

## B-1 gets stronger substructure

To make the B-1B safer and sturdier, employees in the Airborne Accessories Directorate at Oklahoma City Air Logistics Center (ALC), Tinker AFB, Okla., have developed a maintenance plan that will give the bomber more resilient horizontal stabilizers and keep it flying well into the future.

The plan, which was several years in the making, calls for completely gutting the substructure.

"We're basically taking out all of the old horizontal

substructure," said John E. Morgan, a structural engineer in the B-1B System Support Management Directorate.

The project, which will eventually involve the entire fleet of 93 aircraft, is expected to last for the next six years and cost hundreds of millions of dollars, according to Morgan.

"The new horizontal stabilizers are designed to span the entire life of the aircraft," Morgan said. That's good news for the bomber, which came with a price tag of about

*(Continued on page 11)*

## COMING UP

### NDIA to host 28<sup>th</sup> Environmental, Energy Symposium & 18<sup>th</sup> DOD Logistics Conference



#### Plan now for Defense Sustainment Symposium

**R**egistration is under way for the Defense Sustainment Symposium, which will take place April 16-18 at the Omni Hotel in Jacksonville, Fla. Co-sponsored by

- ♦ The Joint Technology Exchange Group,
- ♦ The National Center for Manufacturing Sciences/Commercial Technologies for Maintenance Activities,
- ♦ The Joint Council on Aging Aircraft, and Department of Defense Sustain-

*(Continued on page 15)*

**T**he National Defense Industrial Association (NDIA) has selected a theme of “Integrating the Dual Goals of Environment and Energy for Sustainable Federal Operations” for the 28<sup>th</sup> Environmental and Energy Symposium and Exhibition.

The focus of the symposium, which will take place March 25-28 at the Charleston Area Convention Center, S.C., is to present issues related to federal agency environmental preservation and energy conservation leadership. The goal is to ensure appropriate compliance in these two vital areas through the integration of environment and energy accountability in the management of impacting activities, and the application of technology.

The symposium is sponsored in cooperation with the deputy undersecretary of defense for Installations and Environment, the Army’s assistant chief of staff for Installation Management, the Environmental Protection Agency’s (EPA) Federal Facilities Enforcement Office, and the Defense Logistics Agency’s (DLA) Defense Energy Support Center.

#### SAE/DOD maintenance symposium slated for Reno

**T**he Society for Automotive Engineers will host the 2002 Department of Defense Maintenance Symposium and Exhibition Oct. 28-31 in Reno, Nev.

The annual symposium is the major defense forum for addressing issues and innovation for equipment maintenance. More than 1000 participants from all ranks, Services, and industries, and more than 125 exhibitors are expected.

For information contact Amanda Heusey, (724) 772-4078, [ahousey@sae.org](mailto:ahousey@sae.org), or visit [www.sae.org](http://www.sae.org).

#### DOD Logistics Conference

In cooperation with the Office of the Secretary of Defense, the NDIA will host the 18th annual Department of Defense Logistics Conference and Exhibition March 11-14 at

*(Continued on page 15)*

## JDMAG PEOPLE



### Larry Rutledge

**J**DMAG recognized administrative assistant Linda Crago, retired industrial specialist Ken Ellis, secretary Selma Britton, and logistics management specialist Kelly Blakely for exceptional performance and contributions to organizational goals and missions for the first through the fourth quarter respectively of fiscal year 2001.

The employees were nominated for the Employee of the Quarter award based on their work effort and professionalism.

JDMAG also recognized the recent retirement of Larry Rutledge, former chief of the Depot Maintenance Analysis Division. A department of the Army employee, Mr. Rutledge had been a member of JDMAG since its inception in 1982.

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\$225 million at the time of production.

Program manager Gerri Haynes said officials began looking at improving the stabilizers in the early 1990s, after a routine inspection due to a lightning strike revealed cracks in the substructure. Subsequent inspections on other aircraft indicated the problem was fleet-wide.

“We utilized bore scopes initially developed for medical purposes — very small, very tiny — to peer through fastener holes and found some cracks in just about every one we looked at,” Morgan said. “We started a nondestructive inspection program where we X-rayed the entire surface of the substructure and bore scoped portions of it.

“Ten years into the aircraft’s life, we started seeing some failures. So, we came up with an interim repair to keep the aircraft flying until we could evaluate and develop a permanent repair.”

Morgan said extensive evaluation on the aircraft determined that a poorly designed substructure and assembly flaws early on during production were most likely to blame for the failures.

“This evaluation process has been going on for a few years, Haynes said.

The first of two prototypes, which entered programmed depot maintenance in November 2000, made its way back into the fleet Aug. 16, 2001, with the second following closely behind.

John Johnson, supervisor of the B-1 Horizontal Shop, said employees are currently working on four more stabilizers.

The project is expected to go into full production within the next month as the shop grows from 25 employees to about 75.

The horizontal stabilizers, which provide for a bomber’s pitch and roll, measure 25 feet long, 8 feet wide, and 1 foot deep. The stabilizers are made of aluminum skins with 25 titanium spars than run lengthwise, and a number of aluminum ribs that crisscross the spars.

During the repair, workers remove the upper skin, which has about 3,500 fasteners, take out the old spars and ribs, and replace them with new parts.

The new spars are manufactured in St. Louis and delivered to Tinker for installation. The ribs are manufactured at Tinker.

For information contact Darren D. Heusel, Public Affairs Office, [darren.heusel@tinker.af.mil](mailto:darren.heusel@tinker.af.mil).



# New machine helps keep Tinker AFB clean

**D**epot maintenance activities create wastewater containing oily substances and insoluble materials such as aqueous film forming foam (AFFF). As a result, Tinker Air Force Base, Okla., has purchased an air-sparged hydrocyclone system (ASH) to remove oil, chemicals, and AFFF from industrial wastewater.

"It's an oil-water separator that has other capabilities," said John Spivey, a support contractor with TRW, a global technology, manufacturing, and service company. "One of the technology's greatest benefits is that it can successfully remove AFFF, which firefighters use to put out fires, from your waste stream.

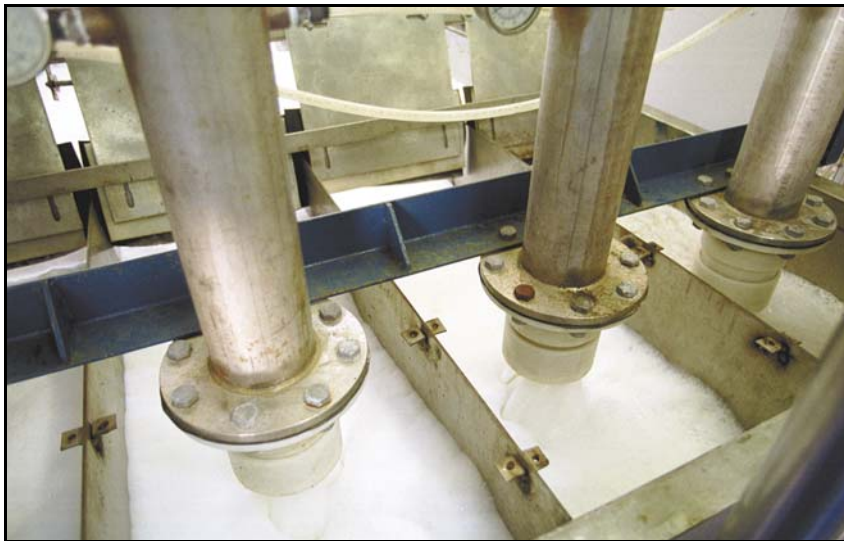
"The technology, the idea, and the theory behind the process were developed by Dr. Ye

Yi at the University of Utah in partnership with the Air Force Research Laboratory (AFRL)," said Freddie Hall, a chemical engineer in Engineering Services at Oklahoma City Air Logistics Center (OC-ALC). "This project is another example of a technology that was developed in cooperation with the AFRL at Tyndall AFB, Fla., and is being successfully transitioned to the field."

Kemco Systems, Inc., of Clearwater, Fla., which is working with AFRL performing the field tests, will be involved in designing and manufacturing the OC-ALC unit.

The ASH has two vertical tubes with a conventional cyclone header at the top and a froth pedestal at the bottom. The inner tube is a porous tube through which air is sparged. The outer tube serves as an air jacket to evenly distribute air through the inner tube. Air is forced through a nipple, "where it hits that porous filter inside and then creates a thousand bubbles," said Spivey.

According to Hall the diffuse layer of bubbles pro-



*The air-sparged hydrocyclone system cleans industrial wastewater using air in a new technology being tested at the Industrial Wastewater Treatment Plant at Tinker Air Force Base, Okla. Treated water moves at 50 gallons a minute through the system, passing through tubes that leave the water with less waste after each pass. (Air Force photo by Margo Wright)*

## SPOTLIGHT

moting the removal of the insoluble contaminants from the wastewater is the key to the process.

The system is being tested at Department of Defense sites

around the country. Tinker's ASH system has four hydrocyclones with a capacity of 50- to 100-gallons per minute. The technology, demonstrated at three different OC-ALC sites,

has performed successfully at two of the three sites. These results prove the system is effective at removing AFFF and reducing the chemical oxygen demand (COD) from Tinker's wastewater. COD is the amount of oxygen required to oxidize the organic compounds in a water sample to carbon dioxide and water.

"COD basically tells you the level of contamination in the wastewater stream," Hall said. "It's primarily organic constituents, but it can be metals, soaps, and other wastewater components."

"The chemicals get into the wastewater and will absorb all the oxygen in the water," Spivey said. "If you put this into a stream, it will kill the fish."

"We're still investigating and trying to identify the best application for the technology. We have had limited success at one Tinker site, because our waste stream components were extremely soluble," he said. "An example is like taking a spoon of sugar and putting it in your coffee – it will dissolve into the hot water. The solubility makes it difficult to remove some of the contaminants from the wastewater."

Hall said the reason the system had limited success with the one waste stream is potentially due to the alcohol-

*(Continued on page 15)*

*AF, Navy partner to find environmental solutions*

### **AFRL brings full-scale ASH system to NS Mayport**

**I**n November 2000 Air Force Research Lab (AFRL) and Naval Facilities Engineering Service Center (NFESC) demonstrated a full-scale air sparged hydrocyclone (ASH) system at Naval Station Mayport, Fla.

The system is similar to one that the Navy Environmental Leadership Program (NELP) and Public Works Center (PWC), Jacksonville, Fla., recommended to treat wastewater contaminated by aqueous film forming foam (AFFF).

NELP wanted to develop a system to handle contaminated wastewater treatment plants. AFRL first identified the system and worked with NELP and NFESC to evaluate a prototype version through a series of demonstrations at Fleet Training Center Mayport approximately a year ago.

Based on the findings of the demonstrations, the Air Force purchased a full-scale

version of the system in October. AFRL and NEFSC representatives are taking the system on a nine-base educational tour to show its capabilities.

"This was a good opportunity to see the full-scale version in operation," said Cheryl Mitchell, NS Mayport's environmental director. "We are looking forward to acquiring our own system and educating the activities on its capabilities."

The development of the ASH system is an example of the "purple efforts" of the Department of Defense, where different branches of the armed forces work together to eliminate duplication of effort.

For information on the ASH system contact Mark Dunn, (904) 722-2153; to find out more about NELP contact Cheryl Mitchell, (904) 270-6730/DSN 960-6730.

(Continued from page 8)

sensing elements.

"Flight conditions are simulated by pressure-generating devices that must be interfaced with pitot static probes on the airplane."

Lt. Col. Mike Moschella, chief of the Aircraft Production Division, said the new

system saves time, too.

"We can do a pitot static system check in about a third of the time it used to take," he said. "(It) is extremely efficient and effective as we try to get the airplanes out of programmed depot maintenance faster and back to the war fighter that much sooner."

Moschella said the new system is easier for the mechanic.

For information contact staff writer Ray Dozier, office of Public Affairs, DSN 339-5779/(405) 739-5779, [ray.dozier@tinker.af.mil](mailto:ray.dozier@tinker.af.mil).

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program office located at Naval Air Systems Command (NAVAIR), Patuxent River, Md. Joint program manager Captain Thomas Cahill, provided necessary acquisition resources and processes to Captain Christopher Roum, commanding officer, NADEP JAX, who lead the on-site implementation.

After a Jan. 4, 1999, project start, MRP-II was implemented in stages, and the NADEP JAX Workload Control System legacy application, which has been in use at the depot for the last 30 years, was officially shut down on September 30, 2001. Full cut-over to the new software began the next day.

Now 100 percent of all work is on the WDS MRO system, including all aircraft and engine types supported by NADEP JAX and annual production of avionics and component items. Under MRP-II, 201,000 work orders have been completed within the last year.

NADEP JAX is already seeing positive results from the new system, including a 16 percent increase in avionics production. Some initial skepticism has been replaced with acknowledgement that the new system is superior to the old way of doing business and is enabling NADEP JAX to better serve naval aviation. The

same WDS MRO software is also scheduled for implementation in the naval air depots in Cherry Point, N. C., and San Diego.

For information contact Nancy L. Crook, public affairs and communications officer, (904) 542-3168, [CrookNL@navair.navy.mil](mailto:CrookNL@navair.navy.mil).

**WHAT A BLAST!** Technician Sam Vigil uses baking soda to remove paint from a C-130 aircraft wing flap at Warner Robins Air Logistics Center, Robins Air Force Base, Ga. Baking soda, which requires only hot water to dissolve, cleans up easier than plastic media, which leaves dust all over the facility. (JDMAG photo by Cynthia Cox Underwood)





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For information contact Mr. Terry Bean ([Terry.Bean@wpafb.af.mil](mailto:Terry.Bean@wpafb.af.mil)), DSN 674-0047.

## ARMY

The Army adopted a phased approach to modernization, with a planned rollout over the next four years of the Wholesale Logistics Modernization Program (WLMP). The first phase included evaluation and selection in December 2000 of a commercial ERP product that will provide the foundation for the new logistics system.

The Army is stressing a Web-based approach with the ability to continually update and incorporate commercial

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based chemical depainting agents, which limited the removal to about 30 percent.

"Spivey and (Rick) Baker (a mechanical engineer at Kemco) have had good results at just about everywhere they've tested, but Tinker's waste stream has been a little more challenging than some of the other demonstration sites," Hall explained.

Spivey and Baker, who have been using different polymer combinations, will continue to do their homework in hopes of finding a silver bullet for all three waste streams. They also have sent waste stream samples to Kemco's laboratory for further testing

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the Adam's Mark Hotel in Jacksonville, Fla. The theme will be "Achieving Acquisition and Logistics Excellence," and the conference will showcase the DOD's evolution in thinking to achieve excellence in logistics support processes.

Employees of government agencies, such as the DOD, DLA, EPA, Department of Energy, state and local regulatory agencies, and government pro-

best practices. The Communications-Electronics Command (CECOM) is charged with implementing the ERP phase of the WLMP at Tobyhanna Army Depot, Pa., in June.

For information contact

with different chemical treatment combinations.

"This machine right now will take out paint, chips, metals, oil, and grease but has difficulty reducing the soluble COD," Baker said.

Hall said he has seen demonstrations of other COD-reducing technologies, which worked well. However, they were considerably more expensive and manpower intensive than the ASH system, which also required very little process maintenance and oversight, according to Hall.

For information contact staff writer Ray Dozier, Office of Public Affairs, DSN 339-5779/(405) 739-5779, [ray.dozier@tinker.af.mil](mailto:ray.dozier@tinker.af.mil)

curement and contracting agencies, should attend.

For conference information visit <http://environment.ndia.org>, or contact Kristen Haggquist Christman, [khaggquist@ndia.org](mailto:khaggquist@ndia.org), (703) 247-2587. For exhibits contact Kira Migliore, [kmigliore@ndia.org](mailto:kmigliore@ndia.org), (703) 247-2590, or Tim Becker, [becker@ndia.org](mailto:becker@ndia.org), (703) 247-2573.

Dennis Urban, DSN 987-1073, [Dennis.Urban@maill.monmouth.army.mil](mailto:Dennis.Urban@maill.monmouth.army.mil).

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ment and Readiness Subpanel,

The symposium has a theme of "Strengthening America's Military."

Ongoing projects will be presented in five tracks: metals, non-metals, electronics, green manufacturing, concurrent engineering, and advanced business practices. In addition, the event will feature hands-on demonstrations of technology development as well as guest speakers.

For information contact Chuck Ryan, NCMS Executive Director, CTMA programs, (734) 995-4905. To register call Shirley Phillips, (734) 995-7986, or visit [www.jdmag.wpafb.af.mil/announcement.apr02.htm](http://www.jdmag.wpafb.af.mil/announcement.apr02.htm).



*A SHIP IN A BOTTLE. Employees of the Satellite Communications Systems Directorate at Tobyhanna Army Depot, Pa., remove the elevated equipment room (EER) from an OE-361 antenna, which has a 38-foot diameter dish, to update its electronics. Instead of using the conventional approach, engineers and sheet metal mechanics at the depot designed and built a lifting structure that could be erected inside the radomes. Previously the 9000-pound shelters had to be lifted by a 100-ton crane costing \$1,800 a day, and the top portion of each radome had to be partially dismantled to remove and replace the EER. (U.S. Army photo)*